

FIG. 1 Prior Art

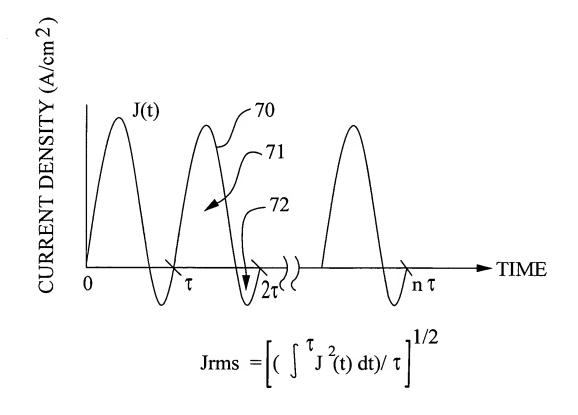


FIG. 2 Prior Art

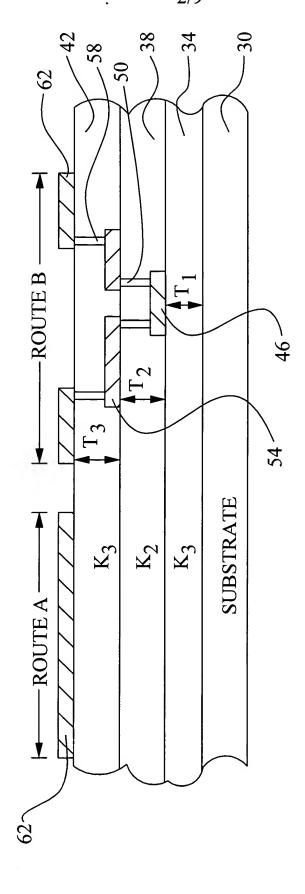
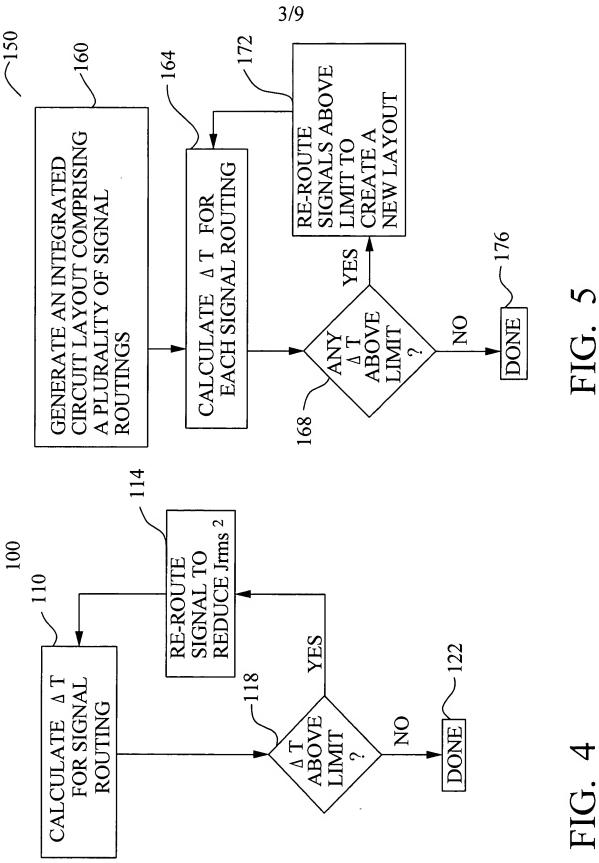


FIG. 3



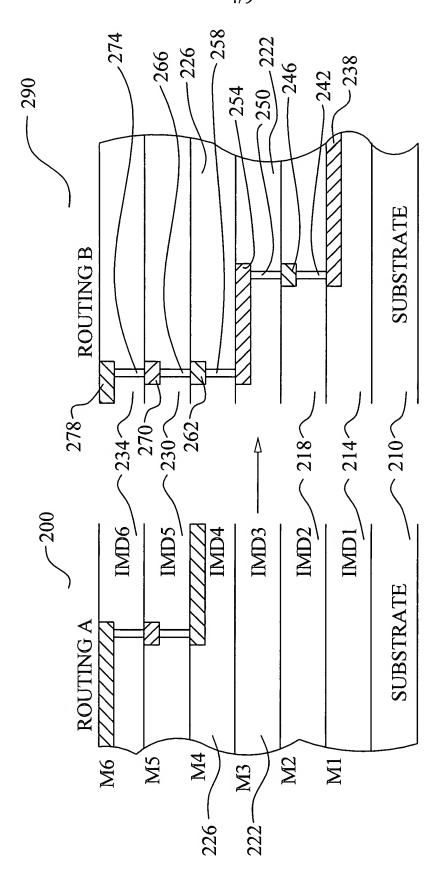


FIG. 6

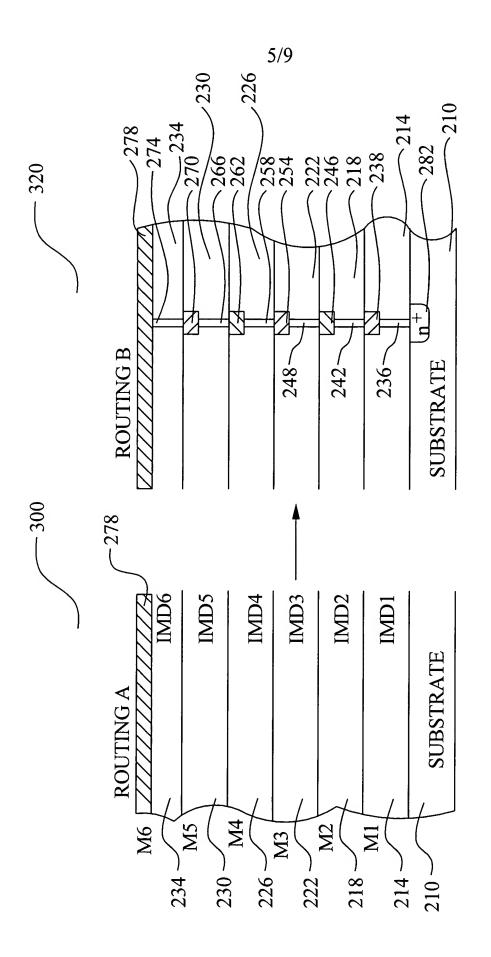


FIG. 7

Wide Line Joule Heating Evaluation@150C

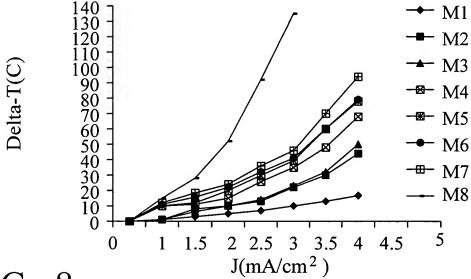


FIG. 8

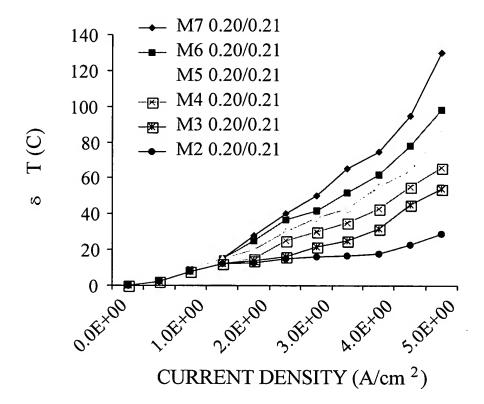
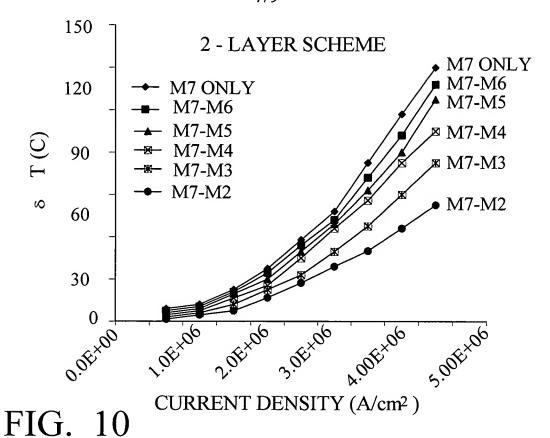
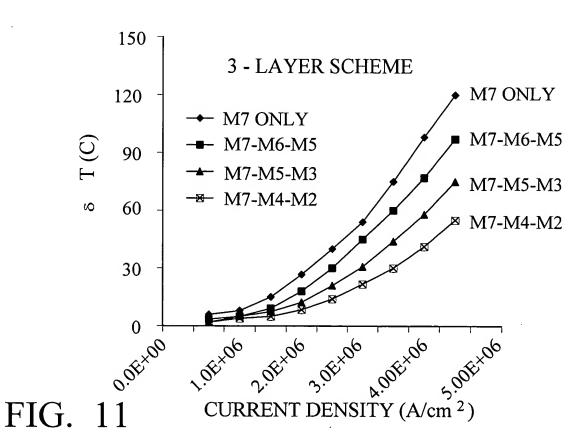


FIG. 9





Cu LINE M3 (WIDTH 3.0 µm, LENGTH VARYING)

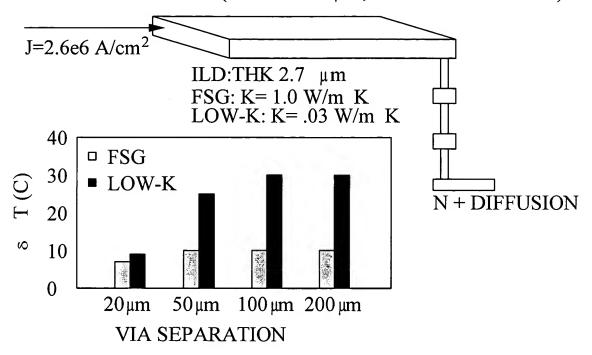


FIG. 12

Cu LINE M8 (WIDTH 3.0 µm, LENGTH VARYING) JOULE HEATING COMPARISON (@7e6A/cm²)

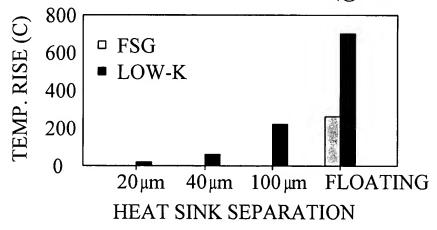


FIG. 13

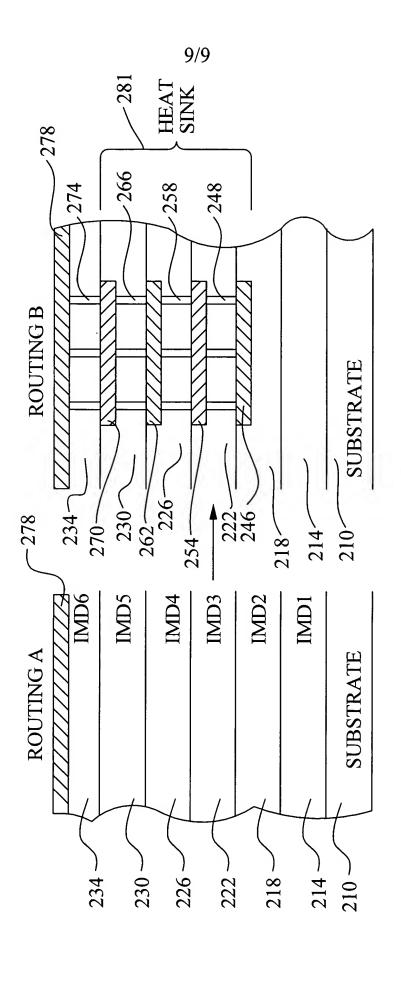


FIG. 14